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SYMYX TECHNOLOGIES INC LEGAL DEPARTMENT 3100 CENTRAL EXPRESS SANTA CLARA, CA 95051			QUAN, ELIZABETH S	
			ART UNIT	PAPER NUMBER
			1743	

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/801,389

Applicant(s)

BERGH ET AL.

Examiner

Elizabeth Quan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-76 is/are pending in the application.
- 4a) Of the above claim(s) 50-57 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-49 and 58-76 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-49 and 58-76 in the Response to Restriction Requirement submitted 1/23/2004 is acknowledged. The traversal is on the ground(s) that: 1) Under MPEP 803, if the search and examination of an entire application can be made without serious burden, the Examiner *must* examine it on the merits, even though it includes to independent or distinct inventions. 2) A substantial overlap in claim requirements exists between the elected and non-elected claims. Both claims 1 and 50 require four or more reactors with corresponding four or more mixing zones. In each of these claims at least one component is fed to the mixing zones through a set of flow restrictors that have a varying relative flow resistance. Also, both claims require that four or more varying feed compositions be simultaneously supplied (or adapted for simultaneous supply) to the respective reactors. 3) Claim 57 is a linking claim directly depending from apparatus claims, including claim 1, and as such, includes all of the requirements of the claims from which it depends. Applicant concludes that in view of such overlap of claim requirements the search for the elected claims will necessarily include and overlap with the search from the non-elected claims, such that all of the presently pending claims could be searched without undue burden on the Examiner. This is not found persuasive because the restriction satisfies two criteria for a proper requirement for restriction between patentably distinct inventions: (A) The inventions must be independent or distinct as claimed and (B) There must be serious burden on the Examiner if the restriction is required. The inventions have been shown to be distinct since the apparatus of invention I can be used to practice another materially different process other than the process of invention II, such

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as supplying first, second, and third feed components to the mixing zones or supplying two varying feed compositions to two reactors and duplicating these two varying feed compositions in the other two reactors to verify results or supplying identical feed compositions to the reactors to produce greater product or more carefully verify results. Applicant does not contest that the invention of I is distinct from the invention of II with the admission of "...the invention defined by independent claim 1 (apparatus) can be considered patentably distinct from the invention defined by independent claim 50 (method)..." Under the subsection Guidelines of MPEP 803, it states "...a serious burden on the examiner may be prima facie show if the examiner shows by appropriate explanation of separate classification, or separate status in the art, or a different field of search as defined in MPEP 808.02." A serious burden on the Examiner has been shown by the apparatus of invention I being classified in class 422, subclasses 99, 129, and 130, which are directed to chemical reactors, and the process of invention II being classified in class 436, subclasses 37 and 180, which are directed to chemical processes. The separate classification shows that each distinct subject has attained recognition in the art as a separate subject for inventive effort and a separate field of search. Therefore, there is serious burden on the Examiner. It does not matter whether the claims of the different groups overlap or not. It is not a requirement for a proper restriction. Claim 57 is not a linking but an improper multiply dependent claim since it depends from method claim 50 and either apparatus claims 1, 16, 17, 27, or 28. Even though claim 57 contains language to use the apparatus of claim 1, it does not prevent the apparatus from practicing a different method.

The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

2. The information disclosure statement filed 9/10/2002 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. The document Wijngaarden et al.'s "Industrial Catalysts-Optimizing Catalysts and Processes" has been placed in the application file, but the information referred to therein has not been considered.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the flow restrictor in the form of capillaries and microtiter plate or integral with one or more microchip bodies mounted on a substrate must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 1 is objected to because of the following informalities: In the second line of the preamble of the claim, it appears that "in four or more reaction channels" should either be omitted or changed to "in four or more reactors" since it appears that the four or more reaction channels are the four or more reactors. Perhaps, Applicant means that the parallel flow reaction system is in the form of four or more reaction channels. In that case "four or more reaction

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channels” should be appropriately tied into the structure as recited in the body of the claim.

Additionally, “such” in the 10th line of the claim should be omitted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what is meant by flow restrictors are capillaries. Are they just holes or capillary tubes?

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1-9, 27, 40-49, 58, 60-72, 75, 76 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over by U.S. Patent No. 5,204,270 to LaCount.

LaCount discloses a parallel flow reaction system (1) for effecting four or more simultaneous reactions (fig. 1). The reaction system comprises four or more reactors (9) and fluid distribution system (7,27-36,41,43,45,47,49) (fig. 1). Each of the four or more reactors comprise a surface defining a reaction cavity for carrying out a chemical reaction, inlet port (25) in fluid communication with the cavity, and an outlet port (41) in fluid communication with the reaction cavity (fig. 1). The reaction cavity may be characterized as a flow cavity since

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components flow through it. The fluid distribution system is capable of simultaneously supplying a feed composition in varying relative amounts to the reaction cavity of each of the four or more reactors and discharging reactor effluent from the outlet port of each reaction cavity to one or more effluent sinks (45,49) (fig. 1; col. 11, lines 24-57). The fluid distribution system comprises a feed-composition subsystem comprising four or more mixing zones (7), first feed component source (28), set of four or more first-feed-component flow restrictors (29,30), second feed component source (31), and set of four or more second-feed-component flow restrictors (27,35) (fig. 1; col. 8, lines 25-61). Each mixing zone comprises a flow cavity with at least one outlet for discharging the fluid composition formed therein (fig. 1; col. 8, lines 25-61). Each mixing zone is a well of a parallel batch reactor or microtiter plate, which comes in different sizes and shapes (fig. 1; col. 8, lines 25-61). Each mixing zone is a processing chamber adapted for non-reactive processing of the four or more fluid compositions (col. 8, lines 25-61). The pressure transducer of LaCount is considered part of the flow restrictor since it participates in measuring pressuring and conveying a feed component (claim 2). Each of the four or more mixing zones is in fluid communication with one of the four or more reactors (fig. 1). The first feed component source is fluid communication with each of the four or more mixing zones (fig. 1). Each of the four or more first-feed-component flow restrictors provide fluid communication between the first feed component source and one of the four or more mixing zones (fig. 1). Each of the four or more second-feed-component flow restrictors provide fluid communication between the second feed component source and one of the four or more mixing zones (fig. 1). The flow-partitioning and pressure-partitioning subsystems are integral with each other, such that each of the subsystems are inherently embodied by the same set of inlet flow restrictors. A

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parallel gas chromatography system simultaneously detects at least one reaction product or unreacted reactant from the effluent discharged from each of the four or more reactors (col. 7, lines 49-52; col. 8, line 62-col. 9, line 15; col. 10, line 43-col. 11, line 21).

LaCount does not explicitly disclose a third feed component source, set of four or more third-feed-component flow restrictors, fourth feed component source, and set of four or more fourth-feed component flow restrictors. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include additional feed component sources with respective flow restrictors if a reaction requires more than two components or in order to provide for additional reaction. Furthermore, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art (*St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8). LaCount includes a first feed component source, set of four or more first-feed-component flow restrictors, second feed component source, and set of four or more second-feed-component flow restrictors to provide first and second components to afford a reaction. Applying the case law, it would involve only routine skill in the art to duplicate these elements for a third feed component source, set of four or more third-feed-component flow restrictors, fourth feed component source, and set of four or more fourth-feed-component flow restrictors to provide additional components to a reaction or provide for additional reactions.

Each of the four or more flow restrictors is capable of having or providing a flow resistance that varies relative to other flow restrictors in the set to provide at least two feed components in varying relative amounts to the reaction cavity of each of the four or more reactors while maintaining substantially the same total flow through each of the four or more mixing zones (col. 11, lines 24-57; col. 60-col. 12, line 30). LaCount discloses that the gas flow,

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temperature control, and pressure control for any of the four reactors can be the same or different (col. 11, lines 49-51). The gas flow, temperature control, and pressure control and monitoring is controlled by one or more microcomputers (col. 11, lines 53-57). One would also expect that there would be natural imperfections in the flow restrictors and conduits connecting each flow restrictor with each reactor, such that each set of reactor and flow restrictor within a set of flow restrictors would have at least a slightly different flow resistance although they may be considered to have substantially the same flow resistance. Nevertheless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide each of the flow restrictors within a set with a flow resistance that varies relative to others within the set or the capability of providing a different flow resistance relative to others within respective sets to allow flexibility in providing different amounts of components to each of the reactors to perform different reactions in each of the reactors as necessary or desired to achieve high-throughput.

LaCount does not address the volume of each reaction cavity. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a reaction cavity of not more than 100 ml or 10 ml to effectively, economically, and efficiently accommodate smaller scale reactions. Furthermore, it has been held that where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device (*Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984)).

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LaCount discloses quickly raising the temperature of the reactor with catalyst to 1050 degrees Celsius. LaCount does the pressure of the reactions. LaCount does disclose that the furnace, tubes, and detector cells may be made of stainless steel, which is very well known to withstand a pressure of at least 10 bar. Nevertheless, it would have been obvious to one having ordinary skill in the art to construct the system with even stronger, more pressure-resistant materials such as titanium to withstand pressures of at least 10 bar as required in performing in many synthesis reactions.

LaCount discloses a system including a detection system and fluid distribution system capable of parallel processing. Nevertheless, simultaneous processing is considered a recitation of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPQ 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

12. Claims 1, 9-15, 40, 41, 42, 44-46, 48, 49, 58-60, 67-71, 73-76 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 98/00231 to Parce et al.

Parce et al. disclose a parallel flow reaction system (300) for effecting four or more simultaneous reactions (figs. 3, 4A-F). The reaction system comprises four or more reactors (344) and fluid distribution system (figs. 3, 4A-F). Each of the four or more reactors comprise a surface defining a reaction cavity for carrying out a chemical reaction, inlet port in fluid

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communication with the cavity, and an outlet port in fluid communication with the reaction cavity (figs. 3, 4A-F). The reaction cavity may be characterized as a flow cavity since components flow through it. The fluid distribution system is capable of simultaneously supplying a feed composition in varying relative amounts to the reaction cavity of each of the four or more reactors and discharging reactor effluent from the outlet port of each reaction cavity to one or more effluent sinks (figs. 3, 4A-F). The fluid distribution system is capable of simultaneous processing. After the beads and biochemical system are distributed, such that the beads reside in the wells and the biochemical system resides in the reaction cavity, the beads are light activated to make the components fall off from the bead and flow into the reaction cavity to react with the biochemical system, such that there is simultaneous processing as defined by simultaneous reaction. Nevertheless, the recitation of "a fluid distribution for simultaneously supplying a feed composition comprising at least two feed components in varying relative amounts to the reaction cavity of each of the four or more reactors, and for discharging a reactor effluent from the outlet port of each reaction cavity to one or more effluent sinks" is considered by the Examiner a recitation of intended use of the claimed invention. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPQ 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In this case, the fluid distribution is capable of

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simultaneously supplying the test compounds immobilized on beads through channel (304) and biochemical system through channel (306).

The fluid distribution system comprises a feed-composition subsystem comprising four or more mixing zones, first feed component source, set of four or more first-feed-component flow restrictors (346), second feed component source (figs. 3, 4A-F). Alternatively, the flow restrictors may be in the form of microfluidic or capillary channels, such that is integral with one or more microbodies mounted on a substrate (figs. 6A-C, 7). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to change the geometry and dimensions of channels or capillaries to provide the necessary flow restriction and provide it integral with one or more microbodies mounted on a substrate as a manufacturing expedient, to increase shelf-life of the systems, and encourage high-throughput processing of different or the same type of reactions.

Each mixing zone comprises a flow cavity with at least one outlet for discharging the fluid composition formed therein (fig. 1; col. 8, lines 25-61). Each mixing zone is a well of a parallel batch reactor (figs. 3, 4A-F). Each mixing zone is a processing chamber adapted for non-reactive processing of the four or more fluid compositions (figs. 3, 4A-F). Each of the four or more mixing zones is in fluid communication with one of the four or more reactors (figs. 3, 4A-F). Since the components immobilized on the bead may meet with the biochemical system before entering the reactor in or near seeding channel (306), this region including or excluding that of the reactor is considered the mixing zone. The first feed component source is fluid communication with each of the four or more mixing zones (figs. 3, 4A-F). Each of the four or more first-feed-component flow restrictors provide fluid communication between the first feed

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component source and one of the four or more mixing zones (figs. 3, 4A-F). The flow-partitioning and pressure-partitioning subsystems are integral with each other, such that each of the subsystems are inherently embodied by the same set of inlet flow restrictors. A detection system (308) detects at least one reaction product or unreacted reactant from the effluent discharged from each of the four or more reactors (figs. 3, 4A-F). The detection system is capable of parallel processing. Nevertheless, the recitation of “a parallel detection system for simultaneously detecting at least one reaction product or unreacted reactant from the effluent discharged from each of the reactors” is considered by the Examiner a recitation of intended use of the claimed invention. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPQ 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In this case, the detection device is capable of simultaneously detecting the product streams if the streams were combined and flowed to the detector simultaneously.

Each of the four or more flow restrictors is capable of having or providing a flow resistance that varies relative to other flow restrictors in the set to provide at least two feed components in varying relative amounts to the reaction cavity of each of the four or more reactors while maintaining substantially the same total flow through each of the four or more mixing zones. One would also expect that there would be natural imperfections in the flow restrictors and conduits connecting each flow restrictor with each reactor, such that each set of

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reactor and flow restrictor within a set of flow restrictors would have at least a slightly different flow resistance although they may be considered to have substantially the same flow resistance. Nevertheless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide each of the flow restrictors within a set with a flow resistance that varies relative to others within the set or the capability of providing a different flow resistance relative to others within respective sets to allow flexibility in providing different amounts of components to each of the reactors to perform different reactions in each of the reactors as necessary or desired to achieve high-throughput.

Parce et al. does not address the volume of each reaction cavity. Since the channels are of capillary dimensions, one would expect that the volume of the reaction cavity would certainly not be more than 10 ml. Nevertheless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a reaction cavity of not more than 100 ml or 10 ml to effectively, economically, and efficiently accommodate smaller scale reactions. Furthermore, it has been held that where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device (*Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984)).

Parce et al. do not disclose the temperature and pressure at which materials within the reaction system may be subjected. However, it would have been obvious to one having ordinary skill in the art to construct the system with pressure and temperature resistant materials to afford

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temperatures of at least 100 degrees Celsius and pressures of at least 10 bar as required by many synthesis reactions.

13. Claims 1, 9, 14, 15, 40, 41-49, 58, 60, 67-71, 73, 75, 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/64160 to Guan et al.

Guan et al. disclose a parallel flow reaction system (10) for effecting four or more simultaneous reactions. The reaction system comprises four or more reactors (12) and fluid distribution system. Each of the four or more reactors comprise a surface defining a reaction cavity for carrying out a chemical reaction, inlet port in fluid communication with the cavity, and an outlet port in fluid communication with the reaction cavity. The reaction cavity may be characterized as a flow cavity since components flow through it. The fluid distribution system is capable of simultaneously supplying a feed composition in varying relative amounts to the reaction cavity of each of the four or more reactors and discharging reactor effluent from the outlet port of each reaction cavity to one or more effluent sinks. Nevertheless, the recitation of “a fluid distribution for simultaneously supplying a feed composition comprising at least two feed components in varying relative amounts to the reaction cavity of each of the four or more reactors, and for discharging a reactor effluent from the outlet port of each reaction cavity to one or more effluent sinks” is considered by the Examiner a recitation of intended use of the claimed invention. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use

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must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPQ 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

The fluid distribution system comprises a feed-composition subsystem comprising four or more mixing zones, first feed component source, set of four or more first-feed-component flow restrictors (18), second feed component source. the flow restrictors may be in the form of microfluidic or capillary channels.

Each mixing zone comprises a flow cavity with at least one outlet for discharging the fluid composition formed therein. Each mixing zone is a well of a parallel batch reactor or microtiter plate. Each mixing zone is a processing chamber adapted for non-reactive processing of the four or more fluid compositions. Each of the mixing zones is in fluid communication with one of the four or more reactors. The first feed component source is fluid communication with each of the four or more mixing zones. Each of the four or more first-feed-component flow restrictors provide fluid communication between the first feed component source and one of the four or more mixing zones. The flow-partitioning and pressure-partitioning subsystems are integral with each other, such that each of the subsystems are inherently embodied by the same set of inlet flow restrictors. A parallel gas chromatograph detection system simultaneously detects at least one reaction product or unreacted reactant from the effluent discharged from each of the four or more reactors (figs. 3, 4A-F). Nevertheless, the recitation of "a parallel detection system for simultaneously detecting at least one reaction product or unreacted reactant from the effluent discharged from each of the reactors" is considered by the Examiner a recitation of intended use of the claimed invention. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to

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patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPQ 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Each of the four or more flow restrictors is capable of having or providing a flow resistance that varies relative to other flow restrictors in the set to provide at least two feed components in varying relative amounts to the reaction cavity of each of the four or more reactors while maintaining substantially the same total flow through each of the four or more mixing zones. One would also expect that there would be natural imperfections in the flow restrictors and conduits connecting each flow restrictor with each reactor, such that each set of reactor and flow restrictor within a set of flow restrictors would have at least a slightly different flow resistance although they may be considered to have substantially the same flow resistance. Nevertheless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide each of the flow restrictors within a set with a flow resistance that varies relative to others within the set or the capability of providing a different flow resistance relative to others within respective sets to allow flexibility in providing different amounts of components to each of the reactors to perform different reactions in each of the reactors as necessary or desired to achieve high-throughput.

Guan et al. does not address the volume of each reaction cavity. Since the channels are of capillary dimensions, one would expect that the volume of the reaction cavity would certainly not be more than 10 ml. Nevertheless, it would have been obvious to one having ordinary skill

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in the art at the time the invention was made to provide a reaction cavity of not more than 100 ml or 10 ml to effectively, economically, and efficiently accommodate smaller scale reactions.

Furthermore, it has been held that where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device (*Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984)).

Guan et al. do not disclose the temperature and pressure at which materials within the reaction system may be subjected. However, it would have been obvious to one having ordinary skill in the art to construct the system with pressure and temperature resistant materials to afford temperatures of at least 100 degrees Celsius and pressures of at least 10 bar as required by many synthesis reactions.

There are many places within the system, which could be considered mixing zones, such as the conduits leading into the valve. Nevertheless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide additional mixing zones to accommodate the various feed components required to conduct a reaction.

14. Claims 16-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,204,270 to LaCount in view of U.S. Patent No. 5,603,351 to Cherukuri et al.

LaCount does not explicitly disclose the configuration of four flow restrictors and four valves per mixing zone per reactor. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of LaCount to provide the configuration of four flow restrictors and four valves per mixing zone per reactor to

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accommodate the number of reagents required to conduct a chemical reaction and allow selective control of reagents into the reactor as taught by Cherukuri et al. (fig. 6). Furthermore, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art (*St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8). LaCount includes a first feed component source, set of four or more first-feed-component flow restrictors, second feed component source, and set of four or more second-feed-component flow restrictors per mixing zone per reactor to provide first and second components to afford reactions in each of the reactors. Applying the case law, it would involve only routine skill in the art to duplicate these elements for a third feed component source, set of four or more third-feed-component flow restrictors, fourth feed component source, and set of four or more fourth-feed-component flow restrictors per mixing zone per reactor to provide additional components to a reaction or provide for additional reactions in each reactor.

Double Patenting

15. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

16. Claims 1-49 and 58-76 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-190 of copending

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Application No. 09/801390. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending application claims all elements of the instant application except for the mixing chamber, in which case it would have been obvious to add a mixing chamber to thoroughly mix the feed components upon entering the reactor to ensure sufficient product yield.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Quan whose telephone number is (571) 272-1261. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



ARLEN SODERQUIST
PRIMARY EXAMINER

Elizabeth Quan
Examiner
Art Unit 1743

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